

# **The Fleet Application for Scheduling and Tracking (FAST) Management Website**

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The FAST application was designed to replace the paper and pen method of checking out and checking in GSA Vehicles at KSC. By innovating from a paper and pen based checkout system to a fully digital one, not only the resources wasted by printing the checkout forms have been reduced, but it also reduces significantly the time that users and fleet managers need to interact with the system as well as improving the record accuracy for each vehicle. The vehicle information is pulled from a centralized database server in the SPSDL. In an attempt to add a new feature to the FAST application, the author of this report (alongside the FAST developers) has been designing and developing the FAST Management Website. The GSA fleet managers had to rely on the FAST developers in order to add new vehicles, edit vehicles and previous transactions, or for generating vehicles reports. By providing an easy-to-use FAST Management Website portal, the GSA fleet managers are now able to easily move vehicles, edit records, and print reports.

## **Nomenclature**

<i>GSA</i>	=	General Services Administration
<i>FAST</i>	=	Fleet Application for Scheduling and Tracking
<i>SPSDL</i>	=	Spaceport Processing System Development Lab
<i>KSC</i>	=	Kennedy Space Center

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## I. Introduction

“Fleet Application for Scheduling and Tracking” (FAST) is an application developed in 2014 by the NASA System Hardware Engineering Branch (NE-C4), designed to replace the pen and paper method of checking out GSA vehicles and is currently in a pilot program phase in the OSB II and Logistics Facility.

Currently, there are three FAST Kiosks operating at KSC. The Kiosks consist of an iPad Air and accompanying iOS application to provide an easy-to-use interface for checking out vehicles. The vehicle information is pulled from a centralized database server in the Spaceport Processing System Development Lab (SPSDL). Vehicle reports detailing usage for each vehicle in the system are also automatically generated and submitted at the end of each month. This autonomy reduces the paper waste generated by providing electronic copies rather than paper and reduces time spent gathering and sorting through paper records. Automated emails alerts help vehicle coordinators respond to problems with vehicles much more quickly than previously. By innovating from a paper and pen based checkout system to a fully digital one, we are reducing not only the resources wasted by printing the checkout forms, but significantly reducing the time that users and fleet managers need to interact with the system as well as improving the record accuracy for each vehicle.

NE-C4 developers are working on adding more features to the FAST application. One of the features currently under development is the Management Website. As of today, the GSA fleet managers have to rely on the FAST developers in order to change the vehicles’ location, to edit records, or to change the GSA fleet inventory in general. The Management Website is a portal that allows the GSA fleet managers to easily move vehicles, edit records, and print reports. The task of designing and developing the Management Website was designated as my main project during the internship.

## II. Objectives

The objective of this project is to develop a Management Website portal that allows the GSA fleet managers to edit records, edit vehicles properties, and print records. In that way, the GSA fleet managers don’t have to rely on the FAST developers in order to edit the fleet inventory.

1. To plan and design a Management Website for the FAST application.
2. To implement and provide the functionally required from the FAST Management Website specifications.
3. To integrate the FAST Management Website to the FAST database server.
4. Debugging and updating the FAST kiosks.

## III. Technical Approach

As part of the methodology followed to achieve the objectives, the intern used training tutorials, online resources, and online documentation in order to get familiarized with the following topics: Appcelerator Titanium, Javascript, Ruby on Rails, HTML5 and SQL.

It was important to get an understanding of the main structure of the FAST application before starting implementing the FAST Management Website. Appcelerator Titanium is a framework designed for developing iOS, Android and Blackberry applications, and it’s very convenient since the developer only needs to know how to program using Javascript (Programming language) in order to build apps for any of available platforms. Titanium translates the Javascript code into native code (as it’s required to install Android SDK for Android development and XCode for iOS development), making the applications to behave as if they were written in their native language.

As for the FAST Management Website, the first idea was to develop the website from scratch using HTML5 and CSS. After a couple of weeks contemplating and working on this idea, the developers realized that using Ruby on Rails not only would give them the same tools for implementing the website, but also would give them a very smooth way of integrating the Management Website with the FAST database. Because of that advantage, the developers decided to use Ruby on Rails instead in order to develop the Management Website.

The *Fast Management Website* contains four main pages:

1. *Display Vehicles*: On the display vehicles page, the GSA fleet managers are able to see a list of all the inventory vehicles their corresponding information: make, model, tag number, year, location, capacity,

type, mileage, and last service date. The managers can search for cars or even sort them by any category. They can also add new vehicles from this page.

The screenshot shows the 'Vehicles' page of the GSA system. At the top, there is a navigation bar with links: GSA Vehicles, Reservations, Vehicles, Reports, and Sign Out. Below this, the title 'Vehicles' is displayed. A search bar is located on the right, and a dropdown menu on the left shows '10' entries. A table lists the following vehicles:

Make	Model	Tag Number	Year	Location	Capacity	Type	Mileage	Last Service mileage	Last Service date
Chevy	Silverado		2006	EDL		Truck	2147483647		
Chevy	Malibu		2011	O&C					
Chevy	Malibu		2011	OSB I					
Chevy	G2300 Van		2004	OSB I					
Chevy	Malibu		2011	OSB II					
Chevy	Impala		2001	OSB II					
Chevy	Malibu		2011	OSB II					
Chevy	Malibu		2011	OSB II					
Chevy	Malibu		2011	OSB II					
Chevy	C2300 Van		2005	OSB II					

Below the table, it says 'Showing 1 to 10 of 37 entries'. There are pagination links: Previous, 1, 2, 3, 4, Next. A 'New' button is located at the bottom left.

**Figure 1: Display Vehicles page.** The GSA fleet managers can do several actions like search for a vehicle, sort the vehicles or add a new vehicle to the inventory.

2. *Edit Vehicle:* On the Edit Vehicle page, the GSA fleet managers are able to edit any of the following information of their vehicles: make, model, year, mileage, mail code, building, tag number or parking spot.

The screenshot shows the 'Edit Vehicle' page. It contains a form with the following fields:

- Make: Chevy
- Model: Silverado
- Year: 2006
- In use: ☐
- Mileage: 2147483647
- Last service mileage:
- Last service date:
- Mail code: NE-E9
- Tag number:
- Key location: Room 2134
- Vin number:
- Category: Truck
- Occupancy:
- Parking lot:

At the bottom, there are two buttons: 'Update Vehicle' and 'Cancel'.

**Figure 2: Edit Vehicles page.** The GSA fleet managers can edit the properties of their vehicles.

3. *Reservations Page:* On the Reservations page, the GSA fleet managers are able to see a list of all the transactions made by the users. Also, the managers can edit any of the transactions, which is useful for editing errors made by the users during the check-out/check-in process.

GSA Vehicles   Reservations   Vehicles   Reports   Sign Out					
Listing Reservations					
Show	10	entries	Search:		
Building	Vehicle	Vehicle Tag	Reservation Time	Driver name	
EDL	2006 Chevy Silverado		Aug 7, 2012 ~ 15:19 - 16:19	Flavio Daniel	Delete
EDL	2006 Chevy Silverado		Aug 7, 2012 ~ 14:05 - 15:05	Test Pilot	Delete
EDL	2006 Chevy Silverado		Aug 7, 2012 ~ 14:00 - 14:58	Test Pilot	Delete
EDL	2006 Chevy Silverado		Aug 7, 2012 ~ 13:21 - 14:21	Test Pilot	Delete
EDL	2003 Dodge Caravan		Aug 7, 2012 ~ 13:12 - 14:12	Test Pilot	Delete
EDL	2003 Dodge Caravan		Jul 30, 2012 ~ 12:22 - 13:22	Flavio Daniel	Delete
EDL	2003 Dodge Caravan		May 11, 2012 ~ 14:57 - 15:57	Test Pilot	Delete
EDL	2006 Chevy Silverado		May 11, 2012 ~ 14:45 - 15:45	Test Pilot	Delete
O&C	2006 Dodge Stratus		May 18, 2012 ~ 09:41 - 10:20	Test Pilot	Delete
O&C	2011 Chevy Malibu		May 17, 2012 ~ 16:17 - 19:00	Test Pilot	Delete
Showing 11 to 20 of 27 entries			Previous	1   2   3	Next

**Figure 3: Reservations page.** The GSA fleet managers can see a list of the vehicles reservations and edit them.

4. *Reports page:* On the Reports page, the GSA fleet managers are able to generate monthly reports about the vehicles reservations. They can select a specific month, or they can select the range of months in which they want to see all the reservations of a vehicle.

GSA Vehicles   Reservations   Vehicles   Reports   Sign Out			
Reports			
To find a vehicle tag, please look under Vehicles			
<b>Monthly Usage Records:</b>	<b>Variable-term usage records:</b>	<b>Vehicle User:</b>	<b>Yearly Vehicle Usage Chart:</b>
Vehicle Tag Number: <input type="text"/>	Vehicle Tag Number: <input type="text"/>	Vehicle Tag Number: <input type="text"/>	Year: <input type="text"/>
YYYY.MM: <input type="text"/>	YYYY.MM: - YYYY.MM: <input type="text"/>	Time: <input type="text"/>	<input type="button" value="Generate Report"/>
<input type="button" value="Generate Report"/>	<input type="button" value="Generate Report"/>		

**Figure 4: Reservations page.** The GSA fleet managers can generate reports providing a valid vehicle tag number and a date.

KSC VEHICLE USE RECORD									
1. Organization Engineering and Technology Directorate			2. Mail Code NE		3. Vehicle Tag Number				
4. Location - Building and Room Number 4129P				Signing out the vehicle certifies inspection has been accomplished prior to use and confirms the driver possesses a valid driver's license for this government vehicle.			6. Make/Model 2014 Ford Focus		
5. Month and Year May 2014 - November 2014				Alternative fuel must be used as the primary fuel in alternative fueled vehicles.			6a. Primary Fuel E85		
WEAR SEAT BELTS				NO HANDHELD COMMUNICATION DEVICES			DRIVE THE SPEED LIMIT		
7. DATE	8. TIME OUT	9. TIME OF RETURN	10. NAME (First, Last) (Print Legibly)	11. DESTINATION(S)	12. PURPOSE OF TRIP	13. PARKING SPACE	14. MILEAGE READING	15. COMMENTS (Maintenance Concerns & Fuel Status)	
7/21	9:05	9:35		Badging	Delivery	384	35.0		
7/21	9:38	11:14		Edl	Meeting	384	46.0		
7/21	12:23	16:09		Kli	Training	384	57.0	Paper says vehicle is 2014 but this shows 2013	
7/22	8:41	11:13		LH2 clamshell	Work	384	69.0		
7/22	13:23	15:49		Hq	Meeting	384	79.0		
7/23	9:49	14:21		O&C	Meeting	384	90.0		
7/24	8:30	10:35		HQ	All Hands	384	101.0		
7/24	12:01	13:10		Hq	P/U	384	111.0		
7/29	7:50	9:23		Letf	Mtg	384	133.0		
7/29	9:28	10:16		SSPF	Pick up entrust codes	384	144.0		
7/29	11:04	12:57		O&C	Workshop	384	157.0		
7/29	14:12	14:39		RS&H	Meeting	384	157.0	Not used	

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**Figure 5: Report Example:** This is the first page (1 of 11) of the report generated for a vehicle from May 2014 – November 2014.

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## **References**

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<sup>4</sup>“Appcelerator Mobile Development Resources”, URL: <http://training.appcelerator.com/training-resources>.